TOWARDS RESILIENT SUPPLY CHAINS IN THE INDO-PACIFIC: INDIA AS AN ALTERNATIVE FOR SPANISH COMPANIES

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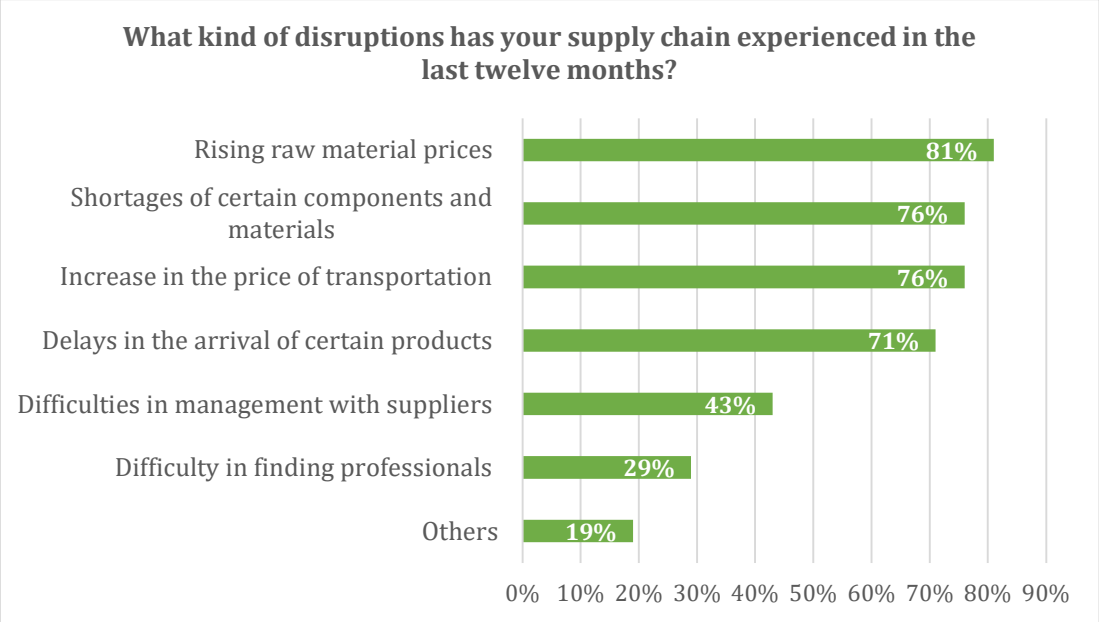
This Concept Paper has been elaborated within the framework of the III Spain-India Dialogue, titled 'Towards Resilient Supply Chains in the Indo-Pacific: India as an Alternative for Spanish Companies', held at the headquarters of the Spanish Chamber of Commerce in Madrid on the 25th of May, 2023. This third Dialogue of the Spain-India Observatory includes keynote speeches Arancha González Laya, Dean at the School of International Relations at Sciences Po Paris, and Alicia García-Herrero, Chief Economist for Asia-Pacific at Natixis, as well as a panel discussion with representatives from ICEX Spain Trade and Investment, Port of Barcelona, Airbus Defence and Space, and Mahindra-CIE Automotive. This introductory document presents the main challenges faced by Spanish companies due to disruptions in supply chains, the current centrality of the Indo-Pacific region, the key factors for building resilient supply chains in the region, and the alternative that India offers for Spanish business. This Concept Paper aims to be accessible to all readers, providing informative content about resilient supply chains in a simplified manner, without aiming to be exhaustive.

* The ideas and analysis expressed in this Concept Paper are those of the authors exclusively. This Concept Paper does not reflect any opinion or endorsement by the Spain-India Council Foundation. Translation into English from the original Spanish version (Carolina de Argumosa Diaz-Lladó).

Introduction: Spanish companies facing supply chain challenges

How have the supply chains been affected by the pandemic and the Russian invasion of Ukraine?

The **weaknesses and vulnerabilities of global supply chains** have been exposed by both the coronavirus pandemic and the Russian invasion of Ukraine. The increase in freight and energy prices, the unreliability of routes and layovers, the closure and congestion of ports, and the scarcity of essential products and materials have impacted global production and business operations. Spanish corporations have not been an exception in this global context of accumulated disruptions in global supply chains due to crises in recent years. **In 2022, 95% of companies reported experiencing some form of supply chain disruption**, mostly affected by rising cost of raw material, component and material shortages, increased shipping prices, or delayed product deliveries (see Figure 1). These crises have highlighted **the importance of specific materials and components in the supply chain**, such as semiconductors in a key industry for Spain like the automotive sector, which accounts for 37% of semiconductor demand in Europe and depends on Taiwan and China that accounts on 60-70% of their production (CLEPA, 2021).



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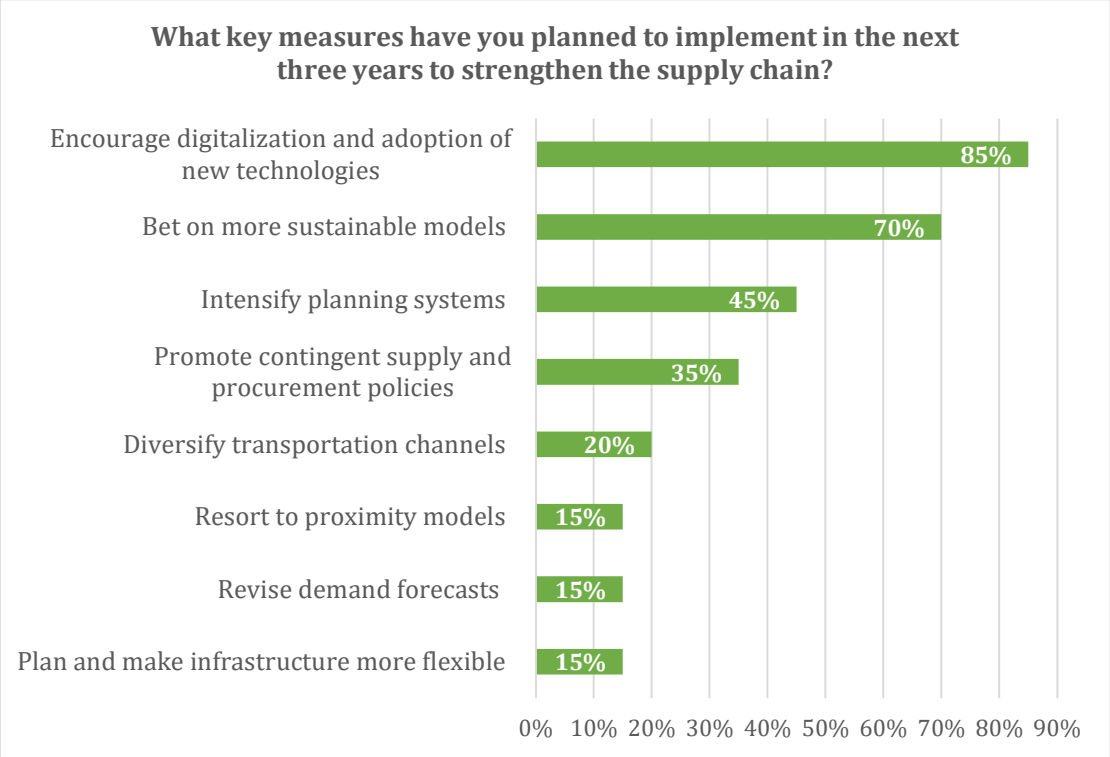

Figure 1: Main disruptions and challenges in supply chains
Source: KPMG & La Vanguardia, Pulso Empresarial 2022 (Based on 30 companies representing 25% of Catalonia's GDP).

What are the main challenges for Spanish companies in strengthening supply chains?

Although the reopening of China accelerated the unblocking of chokepoints in global supply chains, partially alleviating the high inflationary pressures of recent years, the war in Ukraine **triggered a new energy crisis**. The cost of energy imports doubled in Spain in 2022, making it the main importing sector and forcing Spanish businesses to seek sustainable medium-term solutions that would enhance their autonomy and reduce their energy dependence (see Figure 2). Geoeconomic tensions will continue to persist in the upcoming years, with a growing geopolitical crisis in Asia on the horizon, which will require companies **to make strategic decisions regarding their supply chains**, including digital transformation in supplier relationships, production centres, and logistics and distribution channels. The **twin transitions of digitalization and green initiatives** are, therefore, the major challenge for the development of new resilient supply chains that strengthen the position of Spanish businesses. As a result, a majority of companies are prioritizing digitalization and the development of emerging technologies, as well as the adoption of

more sustainable models, as their main measures to be taken in the coming years (see Figure 1).

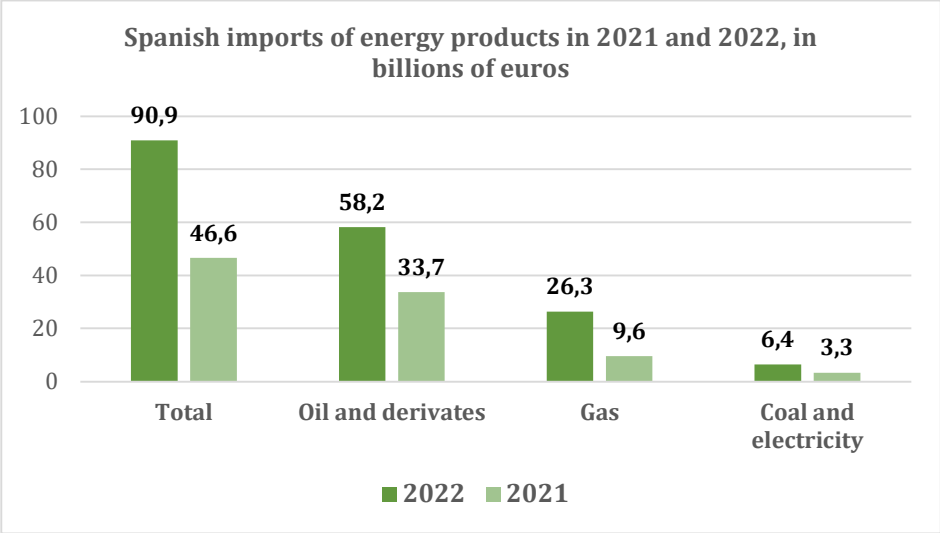

Figure 2: Increase in energy product imports in Spain in 2022
Source: Data Comex, Spanish Ministry of Industry, Trade and Tourism.

What role does the Indo-Pacific play for Spanish companies?

While it remains a business objective to the relocation of specific products closer to the EU and nearby countries to reduce transit times, avoid supply chain disruptions, and reduce carbon footprint, the **Indo-Pacific region continues to be the global manufacturing hub** for many Spanish companies. Among other sectors, the Spanish fashion industry demonstrates the crucial importance of Asia. 55% of Inditex's suppliers, 51% of Mango's suppliers, and 71% of Tendam, Group Cortefiel's suppliers are located in Asia (Inditex, Annual Report 2022; Mango, Transparency Pledge 2022; Tendam, Sustainability Report 2019). Within Asia, **China has become Spain's top supplier in 2022**, surpassing Germany. Spanish imports from China (10.86% of the total) significantly exceed the combined imports from other Indo-Pacific countries (8.10%) (see Figure 3). Maritime transport remains the primary mode of entry (75%) for these goods into Spain and also for outbound shipments, albeit to a lesser extent (57%) (Ministry of Transport, Mobility, and Urban Agenda, 2022). Given the centrality of the Indo-Pacific as a global production leader, the importance of maritime routes, and the fundamental role of Spanish ports in global maritime traffic, it is not surprising **that Spain ranks as the fourth country with the highest volume of goods (origin/destination) crossing the northern part of the Suez Canal**, second only to the Netherlands in Europe (see Figure 4).

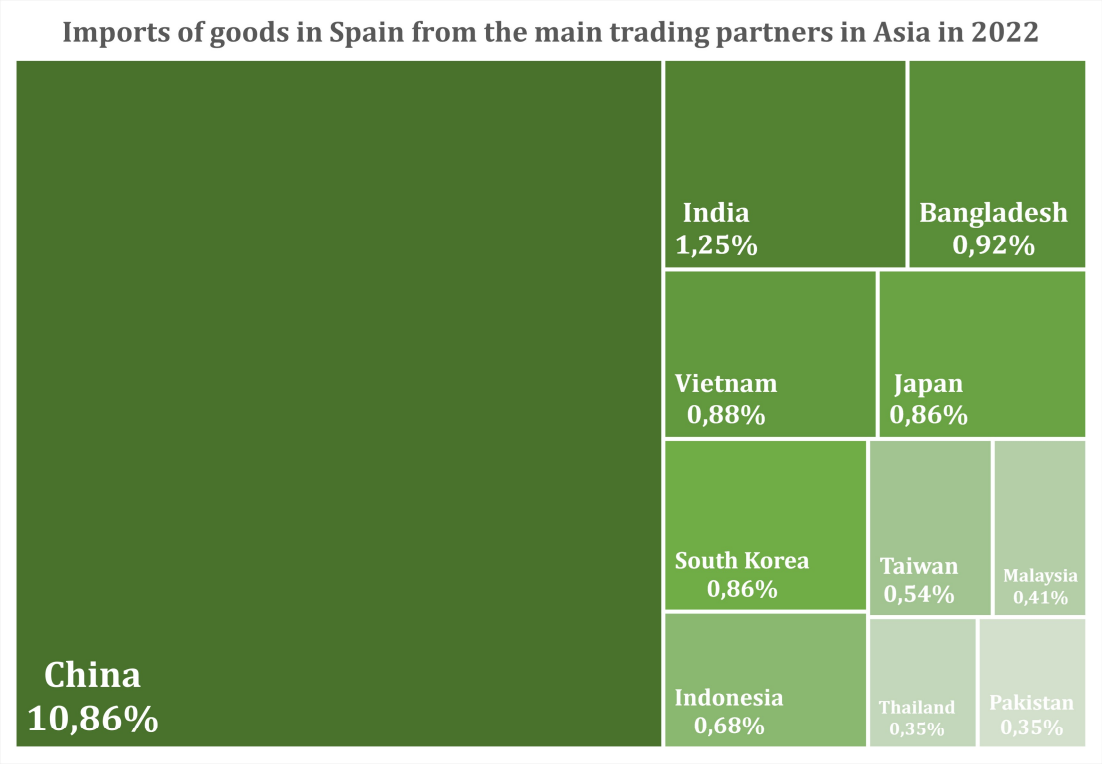

Figure 3: Chinese dominance in Spanish imports
Source: DataComex, Spanish Ministry of Industry, Trade and Tourism

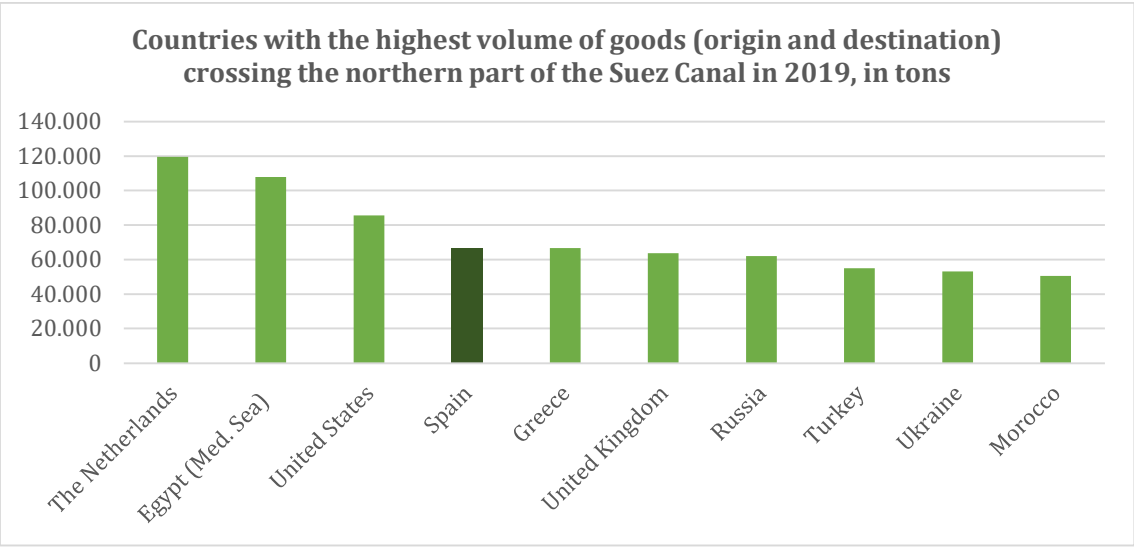

Figure 4: Spain in the transit of goods through the Suez Canal
Source: Annual Report 2019, Suez Canal Authority.

1. The centrality of the Indo-Pacific in global supply chains

The geopolitical and geoeconomic dynamics driving production relocation in the Indo-Pacific

The growing geopolitical tensions in the Indo-Pacific have extended to economic realms, with **geopolitics playing a central role in the region's geoeconomics**. As power rivalries have intensified, the use of economic tools for geopolitical purposes have become a reality. Supply chains are acquiring a crucial role among the economic measures that governments are relying on to implement their strategic agendas. Supply chains not only form a **central part of a country's strategic autonomy** but also serve as an instrument to strengthen its alliance system and participation in the global economy. Attracting friendly investments for production relocation has become a goal among like-minded countries, especially in strategic sectors and materials. This new focus on trust in creating supply chains to foster strategic autonomy for countries and coalitions also requires **ensuring connectivity supported by maritime transportation**. The challenges of security in the Indo-Pacific and the need to protect key trade routes compel states to give paramount importance to maritime security, cooperation in capacity building, and a coalition system that ensures it.[1]

The challenges of global dependence on China

The epicentre of the global supply chain is located in China. **China is the world leader in manufacturing, accounting for 30.5%** of global manufacturing production, surpassing the combined output of the next four countries (see Figure 5). The Asian giant has become a global leader not only in low-tech manufacturing but also in medium and high-tech sectors, where its global market share exceeds 35% (see Figure 6). However, this high dependence on China creates **significant vulnerabilities in the global supply chain**. On one hand, geopolitical conflicts in the South China Sea can cause new disruptions in essential elements of global supply chains. For example, China produces 86% of the world's rare earth minerals (European Parliament, 2022), and the manufacturing of advanced technology semiconductors, with nodes below 10 nanometres, is concentrated in Taiwan, accounting for 92% of global production (Boston Consulting Group, 2021). On the other hand, China faces significant challenges in its industrial sector, including rising production costs and labour shortages. The latter is a structural issue in the Chinese economy, as the country has been reluctant to accept migrant workers, forcing Chinese companies to seek alternatives

[1] Refer to the Concept Paper elaborated by the Spain-India Observatory titled: "Maritime Security, Governance, and Connectivity in the Indo-Pacific: The Central Role of India and Opportunities for Bilateral Cooperation".

to offshoring. Although these factors urge international companies to reduce their dependence on manufacturing in China, they cannot overlook the enormous size of the market in the world's second-largest economy. Thus, business strategies like **"China for China"** aim to concentrate manufacturing in China for the Chinese market and neighbouring markets, promoting a stable local supply chain.

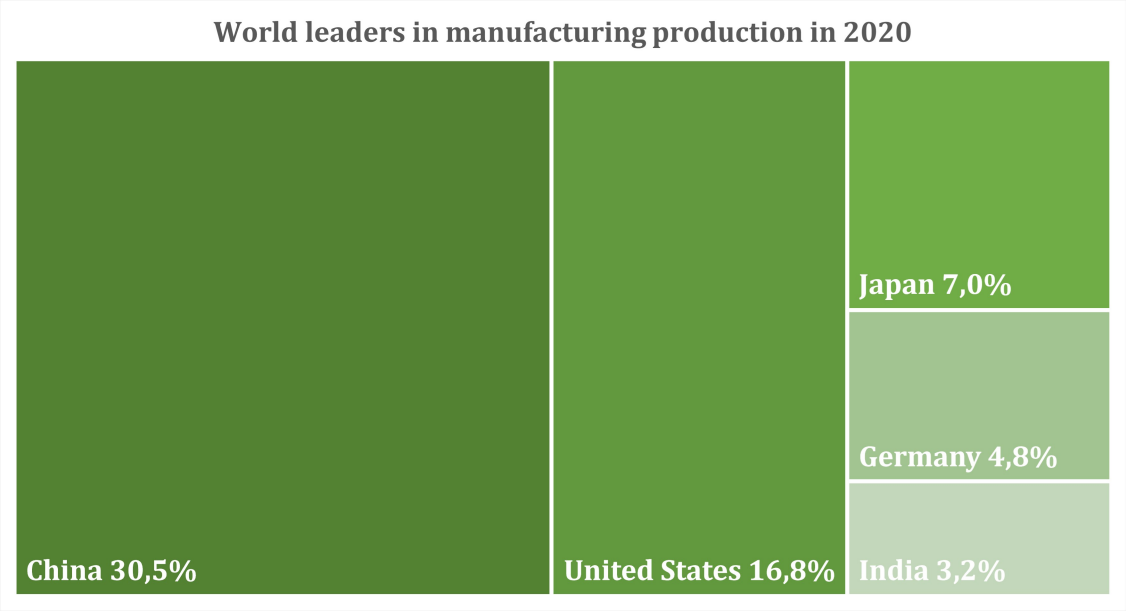

Figure 5: Chinese leadership in global manufacturing
Source: International Yearbook of Industrial Statistics Edition 2022, UNIDO Statistics.

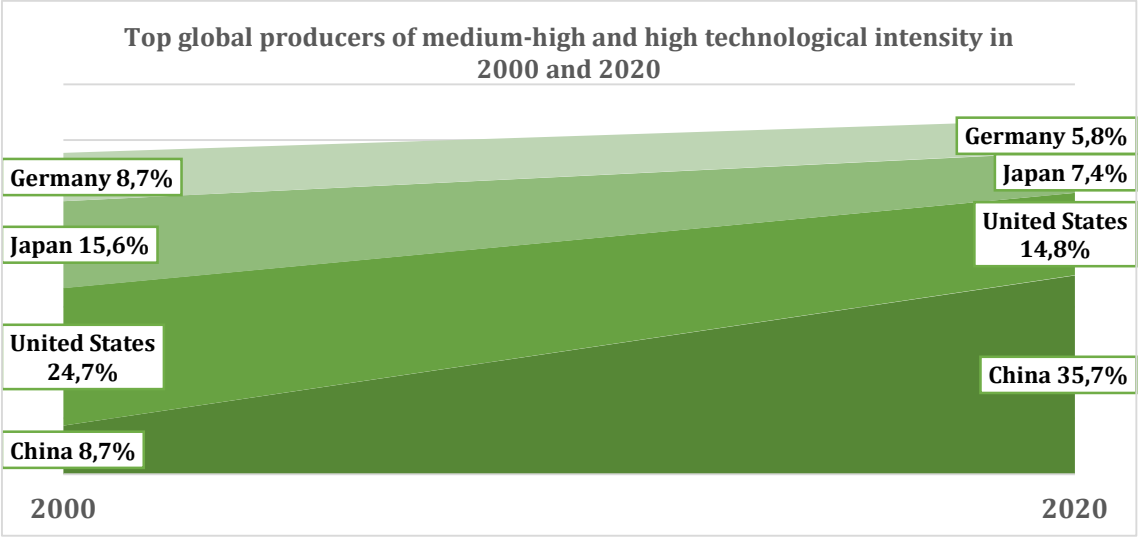

Figure 6: China's hegemony in high technological intensity manufacturing
Source: International Yearbook of Industrial Statistics Edition 2022, UNIDO Statistics.

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Seeking alternatives through friendshoring

The strategy of offshoring —the relocation of production abroad— that has marked the evolution of supply chains in recent decades is being replaced by a **flexible balance between nearshoring** —the relocation of production to nearby countries— **and friendshoring** —the relocation of production to like-minded countries—. In an economic context where companies have a global presence, nearshoring not only involves the return of production to home countries but also the relocation around the major logistics centres of those companies. **Friendshoring entails accepting a global context of geopolitical tensions** where there is a latent risk of disruption in supply chains, which requires concentrating production among allied and like-minded countries. Considering that Asia accounts for 54% of global production (UNIDO, 2022), seeking an alternative to China requires looking to the rest of Asia. **The China+1 Strategy**, a business strategy that aims to diversify production between China and other countries in the region, is becoming increasingly relevant in the supply chain strategies of global companies. From a governmental perspective, initiatives such as the Supply Chain Resilience Initiative launched trilaterally by Australia, India, and Japan aim to reduce dependence on China through the exchange of best practices, the promotion of investments, or the encouragement of supplier diversification. This friendshoring in Asia will coexist with a nearshoring in which the Mediterranean for the European Union and Latin America for North America will play complementary roles in supply chains where Asia will continue to play a fundamental role in a re-globalization drive due to the de-risking strategy followed by international companies.

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2. Present and future key factors to generate resilient supply chains

From efficiency to resilience in the era of re-globalization

Supply chains have become one of the main concerns for global businesses. A potential disruption in the supply chain has become the greatest short-term risk for business growth and is therefore shaping the strategies of internationalized companies (see Figure 7). On the one hand, the current major challenges and vulnerabilities that strain supply chains are causing **relocation dynamics.** There is a transition in the location of supply chains around logistics centres to gain flexibility and stability. On the other hand, efficiency as the central business logic in the age of globalization is evolving towards **resilience in this era of re-globalization**. The current inflationary context, the scarcity of raw materials, and the logistical disruptions are causing short-term margins to no longer take precedence in the strategy of global companies, compared to the goal of ensuring viability, sustainability, and return in the long-term. This ever-changing macroeconomic environment favours strategic decisions about supply chains that lead to an era of controlled deglobalization.

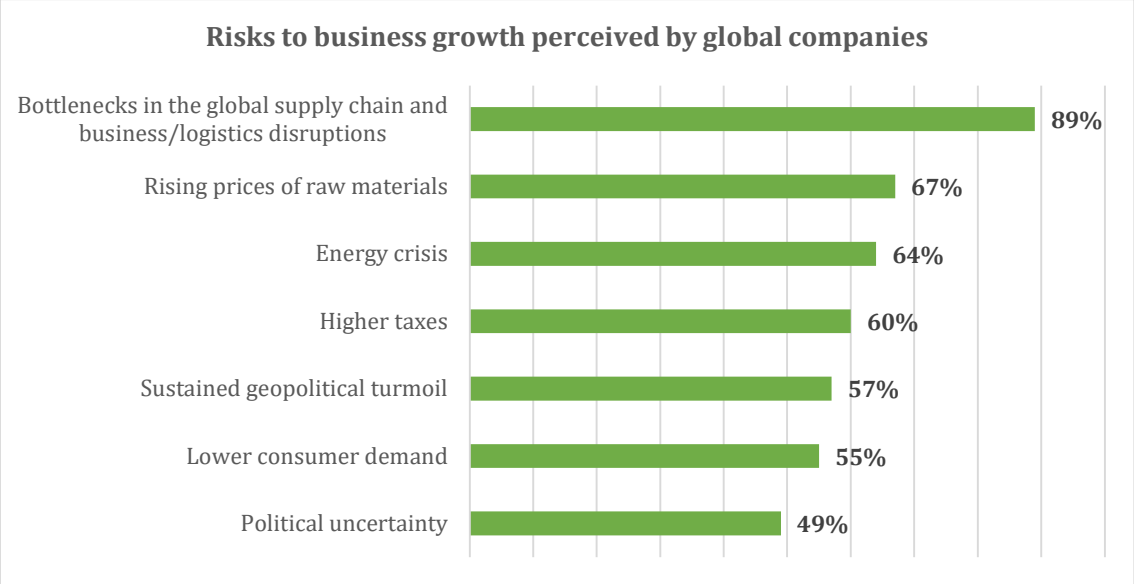

Figure 7: Main risks for business growth in the next 12-18 months
Source: Capgemini Research Institute, Global Investment Research, November–December 2022
(Survey conducted among 2,000 global entrepreneurs)

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The crucial role of semiconductors and critical raw materials

Recent crises have demonstrated not only that **semiconductors are an essential element of the supply chain**, critical in the production of highly technological sectors such as computing, telecommunications, automotive, aerospace, or defence, but also in many others such as industrial machinery, household appliances, or toys. However, **there is no more vulnerable supply chain than that of semiconductors**. A very small group of companies play a key role in the production of semiconductors, creating enormous dependence on these companies and the countries where their factories are located, making their supply chain particularly vulnerable to geopolitical tensions, natural disasters, or cyber-attacks (see Figure 9). Similarly**, China has a global preponderance in the production of critical raw materials and rare earth elements**, which play an essential role in the global supply chain. The use of these materials is crucial in sectors such as construction, chemical industry, machinery, mobility, or equipment, and they are considered critical due to their importance for the economy and the risk of supply disruption (see Figure 8). In the case of silicon, an essential raw material for semiconductor production, China accounts for 68% of global production (US Geological Survey, 2022).

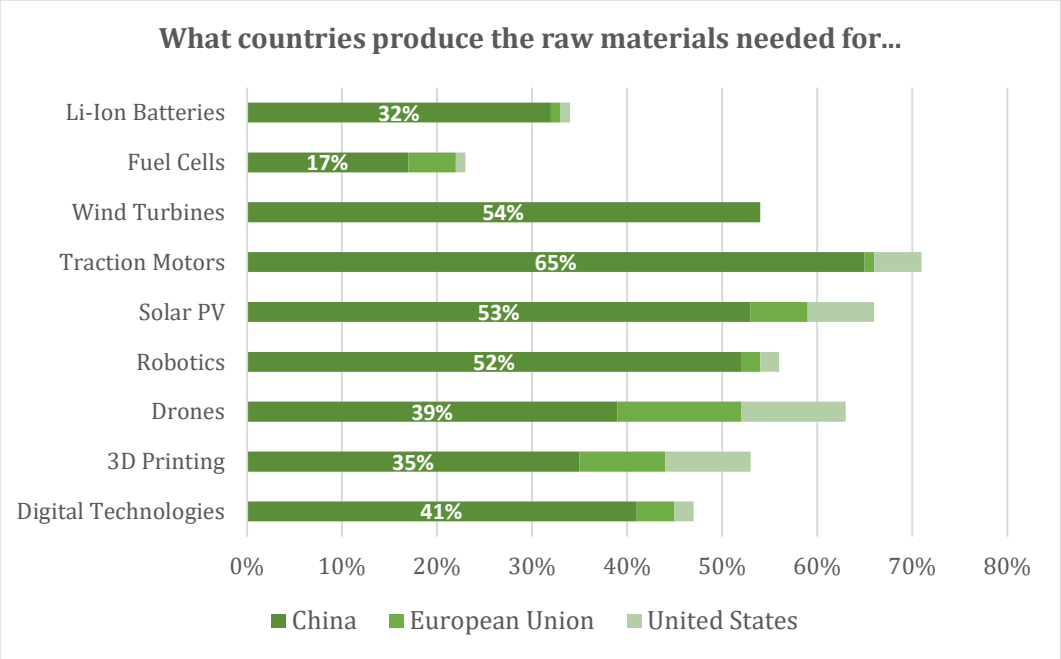

Figure 8: Chinese dominance in the production of critical raw materials
Source: European Commission, 2020

TYPICAL MODEL OF A SEMICONDUCTOR SUPPLY CHAIN

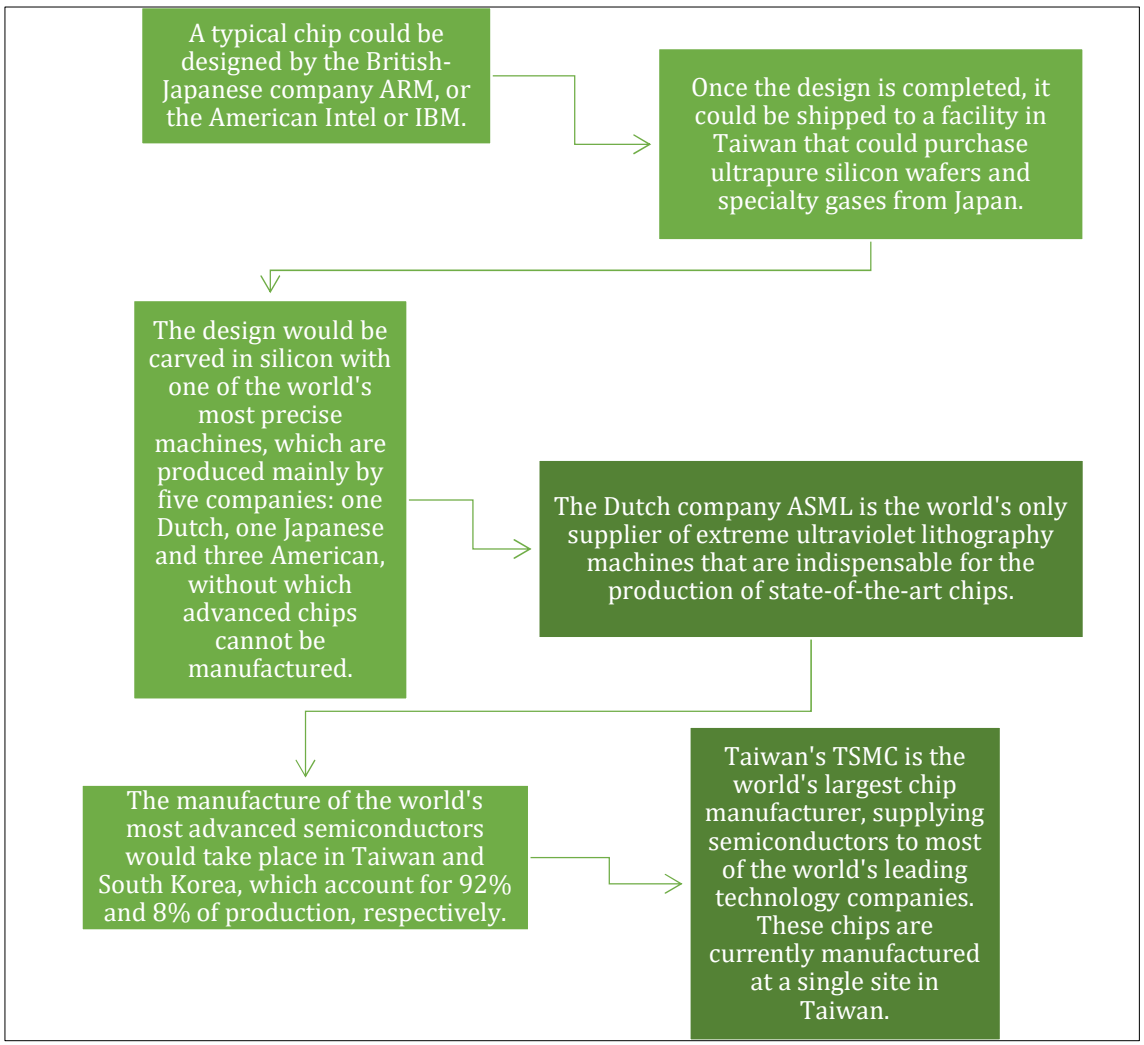

Figure 9: Who's who in the semiconductor supply chain
Source: Boston Consulting Group, 2021; Banker, 2021.

The twin transitions: Digital and sustainable

Emissions from supply chains account for 92% of total organizational emissions, which is more than eleven times higher than emissions from operations (CDP, 2021). Therefore, **sustainability in the supply chain is one of the outstanding milestones** for achieving the social, economic, and environmental impact goals of companies, in line with the SDGs, and an essential pillar for their business strategies in an energy crisis context. Decarbonizing the supply chain depends on both ambitious measures towards energy transition and strategic measures that reduce emissions through a new localization policy. In turn, **digitalization becomes one of the most efficient tools** to facilitate this

sustainable transition. The digital maturity of supply chains still offers room for improvement, not only in manufacturing and storage automation but also in the implementation of specialized software, the use of big data, artificial intelligence, or the Internet of Things. The **integration of the circular economy into supply chains** is the new frontier towards resilience. The circular economy would provide a sustainable pathway for sourcing raw materials in supply chains, eliminating the waste of complex and potentially toxic resources and extending the use of critical raw materials.

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3. India as an alternative in new supply chains

India, a leader in Altasia

Currently, no country offers a sufficient manufacturing base to compete with China in the global supply chain. However, in recent months, the concept of ***Altasia***, an abbreviation for *Alternative Asia*, has gained momentum. *Altasia* represents **a combination of Asian economies that collectively possess a substantial industrial fabric, offering an attractive and competitive alternative to China**, which includes countries such as Japan, Taiwan, South Korea, India, Philippines, Indonesia, Singapore, Malaysia, Thailand, Vietnam, Laos, Cambodia, Bangladesh, and Brunei (see Figure 10). The industrial and technological complementarities provided by these countries allow them to be collectively considered as a business alternative to manufacturing in China. In fact, *Altasia* has gained prominence in the business world as it has been created through **the experiences of Asian companies relocating to these countries**, primarily Korean, Japanese, and Taiwanese companies such as Samsung, Sony, and Foxconn. Although there is no established regional integration dynamics that distinguishes *Altasia*, governmental cooperation among these countries is solidifying, with **India playing a key role in attracting investments for the generation of resilient supply chains**. As an example, within the *Supply Chain Resilience Initiative*, Japan has approved six projects to support its companies in improving their respective supply chains in India.

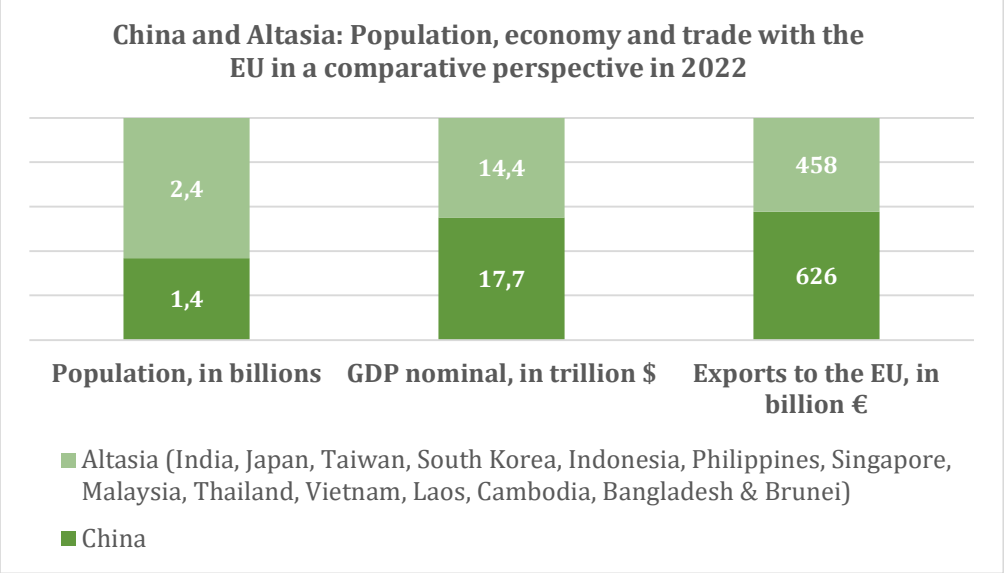
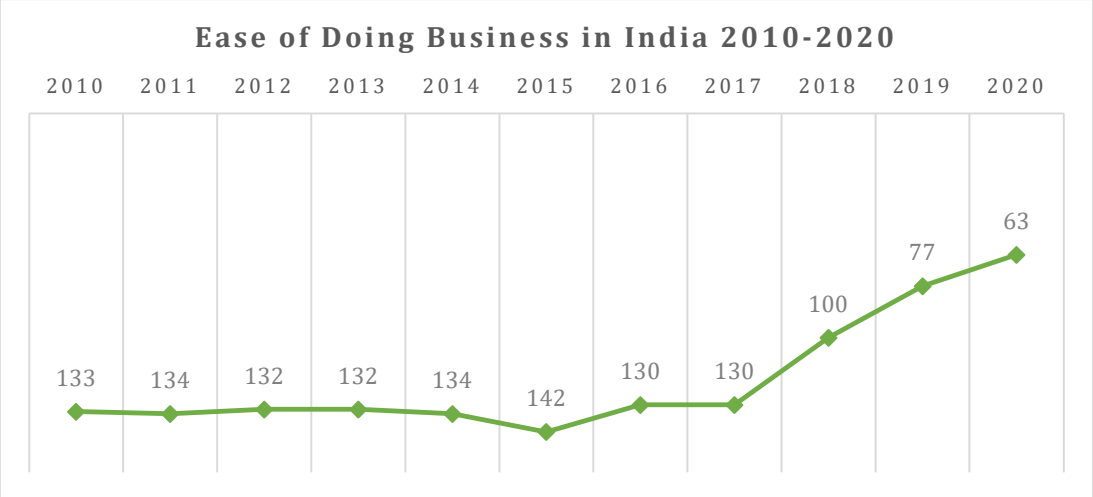


Figure 10: Comparison between China and Altasia (Population, GDP, and Exports to the EU)
Source: Own elaboration based on data from the European Commission.

Opportunities for global supply chain offshoring in India

The efforts undertaken by the Indian government in bureaucratic and regulatory reforms, including digital transformation to facilitate business creation and cross-border trade, reduce time and costs for obtaining construction permissions, and reform insolvency procedures, have gradually improved **India's ease of doing business and logistics performance** (see Figure 11). As the newly emerged world's largest demographic power, India offers an expanding and **increasingly skilled labor market with a favorable cost-to-quality ratio of workforce**, especially considering that higher education is conducted in English (KPMG, 2021). India is consolidating its position as a leader in sectors such as electronics and holds a promising position in others, like lithium battery manufacturing, which is crucial for electric mobility. Furthermore, recent discoveries of lithium reserves within Indian territory can nearly meet the entire local demand for the mineral. A prime example of supply chain offshoring in India from China is the case of Apple, which has tripled its production in the subcontinent, followed by companies like Dell. **The major technology multinational companies' investment in India has a cascading effect on suppliers**, as seen with Apple's partnerships with Foxconn, Pegatron, and Wistron, which are making significant investments in India.



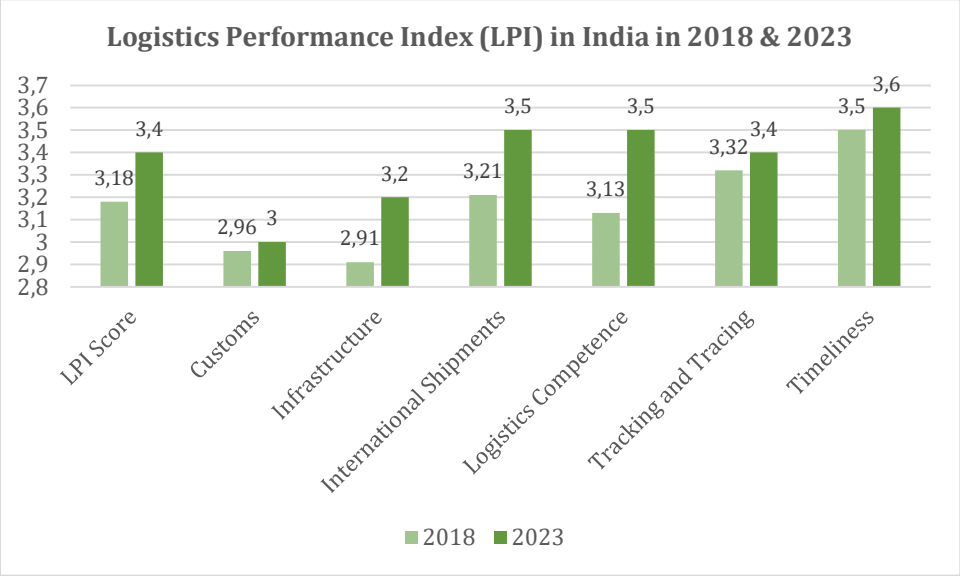


Figure 11: Progress of India in the Ease of Doing Business and Logistics Performance indices. Source: World Bank (Ease of Doing Business Rank / World Bank's Logistics Performance Index).

Challenges of offshoring in India

Although India is in a privileged position to become a new global production centre complementing other countries in the region, there are numerous challenges to achieve this goal. From a geopolitical perspective, tensions at the borders of South Asia and complex relationships with neighbouring countries, **which are among the least economically and commercially integrated regions**, along with the challenges of maritime security to avoid disruptions with other Asian regions, point to a challenging long-term scenario. The growth of the Indian market has led to an increase in manufacturing in sectors where there has been a surge in demand, supported by regulatory initiatives such as the Make in India program. For example, a decade ago, almost all mobile phones were manufactured outside of India, but in the past 8 years, mobile phone production in the country has seen fourteen-fold increase (Ministry of Electronics and IT, 2022). However, India still lags behind in **developing an industrial base in key sectors** such as semiconductors. In this supply chain that relies on components manufactured in third-party countries, India's tax system poses an additional challenge. Finally, despite improvements made in recent decades, **deficits in transport and energy infrastructure** limit the progressive increase in manufacturing in India.

Conclusion: How can Spain and India partner in the development of resilient supply chains?

Spanish companies and its manufacturing in India

The participation and commitment of Spanish companies in the Indian supply chain are reflected in its extensive investment in various production centres in India, where the Spanish companies have around **100 of its own manufacturing facilities** (see Figure 12). Among the companies with factories in India, notable sectors include auxiliary products and industrial engineering, advanced machinery, renewable energies, and automotive components. **The distribution of these manufacturing facilities across a large part of the Indian territory** demonstrates the involvement of the Spanish company in the major industrial hubs and, therefore, in the key links of the Indian supply chain. Among these industrial clusters, Spanish participation stands out in metropolitan areas such as Delhi, Mumbai-Pune, Bangalore, and Chennai. The involvement of major Spanish companies in the Indian supply chain has **a dragging effect on Spanish SMEs that are suppliers to these large Spanish companies**. The establishment of Spanish SMEs in India as local suppliers to these large Spanish companies allows them to access the local market with guarantees and leverage their presence in the country to increase their participation in the Indian economy. For example, this dragging effect can be observed in the renewable energy sector with Spanish suppliers to companies such as Siemens Gamesa or Acciona.

Spanish Companies	Manufacturing Facilities	Total
Afher Eurobelt	Bangalore (1)	1
Ampo	Coimbatore (1)	1
Azud	Delhi (1)	1
Bellota Agrisolutions	Nashik (1)	1
Biotools Biotechnological & Medical Laboratories	Bhopal (1)	1
Blendhub	Chennai (2)	2
Bossar Packaging	Pune (1)	1
CIE Automotive	Pune (9), Bangalore (4), Pantnagar (2), Rajkot (1), Nashik (1), Rudrapur (1), Zaheerabad (1), Coimbatore (1), Haridwar (1), Aurangabad (1), Hosur (1) & Nagpur (1)	24
Cikautxo	Pune (1)	1
CIPSA Circuits	Tumkur (1)	1
Danosa	Mumbai (1)	1
Digiproces	Bangalore (1)	1
Ebro Foods	Taraori (1)	1
Ekin	Gurgaon (1)	1
Ferro Perfomance	Pune (1) & Kanchipuram (1)	2
Frenos Iruña	Kanchipuram (1)	1
Gestamp	Pune (2) & Chennai (1)	3

Glual Hidráulica	Kanchipuram (1)	1
Gorlam Team	Coimbatore (1)	1
Grupo Antolín	Bangalore (1), Chennai (1), Gurgaon (1), Pune (1) & Sanand (1)	5
Grupo Torrent	Jaipur (1)	1
Hedisa	Hosur (1)	1
Hine Renovables	Tiruvallur (1)	1
HRS Heat	Pune (1)	1
Iberchem	Ahmedabad (1)	1
Industrias Barga	Kanchipuram (1)	1
ITP Aero	Hyderabad (1)	1
Infraca	Pune (1)	1
Ingeteam	Chennai (1)	1
Insud Pharma	Hyderabad (1)	1
Jaso	Kolkata (1)	1
Kupsa	Pune (1)	1
Lasenor Emul	Nagpur (1)	1
Laulagun Bearings	Chennai (1)	1
Maier	Gurgaon (1)	1
Mespack	Vadodara (1)	1
Miarco	Gujarat (1)	1
Miju	Pune (1)	1
Rafael González	Bangalore (1)	1
Roca	Delhi (3), Chennai (3) & Indore (1)	7
RPK	Pune (1)	1
Sarralle	Kolkata (1)	1
Savera	Mumbai (1)	1
Siemens Gamesa	Nellore (1) & Mamandur (1)	2
Simon	Haridwar (1)	1
Torrecid	Vadodara (1)	1
Tubacex	Umbergaon (1)	1
Walter Pack	Gurgaon (1) & Pune (1)	2
Windar Renovables	Halol (1)	1
Zahonero	Noida (1)	1
Zanini	Ahmedabad (1)	1
Zirkel Infraca	Pune (1)	1
ZIV	Bangalore (1)	1

Figure 12: The main Spanish companies with manufacturing facilities in India
Source: Own elaboration based on information available in annual reports and websites.

The involvement of the Spanish companies in the development of the Indian supply chain

The Spanish companies participate in the Indian supply chain in different key sectors for the subcontinent's economy. In sectors experiencing strong growth in India, **Spanish technology has been an essential tool** to promote the development and innovation of the supply chain. For example, the food processing sector, which has seen an annual growth rate of 11.18% between 2015 and 2020 (Ministry of Food Processing, 2022), is attracting investment from Spanish companies with high technological components (Ebro Foods, Rafael González, Blendhub, or Lasenor Emul) as well as the participation of Spanish technology in the supply chain of the sector (Zirkel Infraca, Mespack, or Bossar Packaging). Similarly, **Spanish machinery and auxiliary products have been crucial for optimizing the Indian supply chain**. Among the Spanish companies involved in the sector, some of them have their sole production centre in Asia located in India (Hedisa or Jaso). In key sectors for India such as automotive, the **involvement of the Spanish company in its supply chain is essential**. Automotive components manufactured by Spanish companies such as Grupo Antolín, Gestamp, or CIE Automotive play a fundamental role in the major Indian industrial hubs and the development of an expanding Indian automotive sector despite supply disruptions and crises in recent years (see Figure 13).

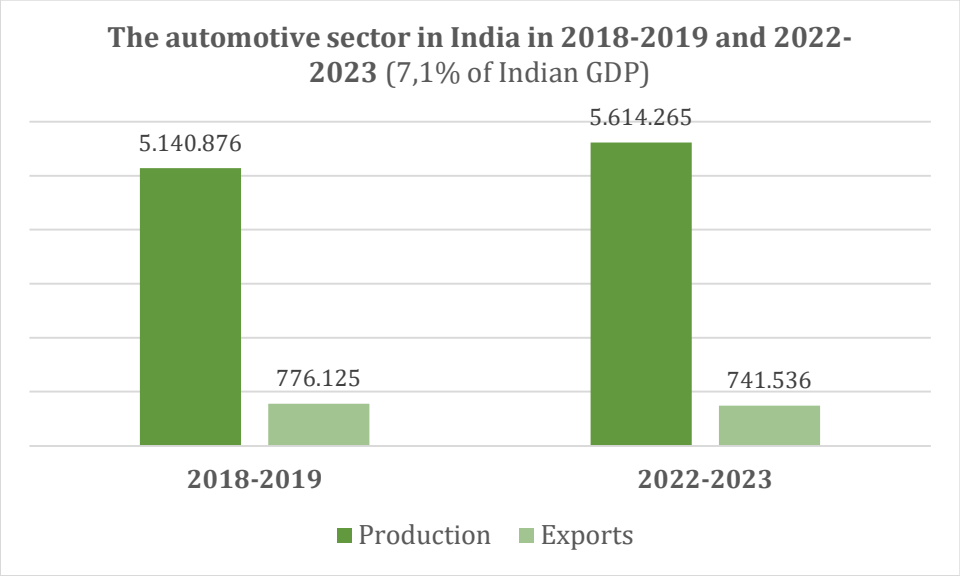


Figure 13: Production growth and weight of exports in the automotive sector in India
Source: Ministry of Information and Broadcasting, Government of India; International Organization of Motor Vehicle Manufacturers (OICA) and Society of Indian Automobile Manufacturers (SIAM).

Opportunities offered by India to Spanish companies as an alternative for production offshoring

India is committed **to providing a favourable environment for production to like-minded countries**, ensuring supply, technological development, and long-term growth. The shift in India's vision regarding cooperation with the European Union in recent years has favoured that the EU has been perceived for the first time as an essential partner in promoting security, stability, and prosperity in Asia.[2] This mutual rediscovery of the EU and India as like-minded countries and strategic partners has allowed for **the development of a strong network of agreements and institutions**. The establishment of the EU-India Connectivity Partnership or the Trade and Technology Council, negotiations for an Investment Protection Agreement and a Geographical Indications Agreement, and the identification of projects for India under the Global Gateway initiative are part of this supportive network that European companies can leverage to consolidate their presence in India.[3] Since India launched the *Make in India* program, allowing 100% automatic foreign direct investment in a wide range of sectors where it was previously limited, Foreign Direct Investment has doubled to $83 billion (Ministry of Commerce and Industry, 2022). Regulatory changes have facilitated the creation of a **business ecosystem more conscious of promoting foreign investment**, including key reforms to facilitate manufacturing in India such as the expansion of industrial licenses and permanent residency status for foreign investors, the simplification of the tax and export system, or the expedition of processes to obtain construction permits.

[2] See the Outcome Paper prepared by the Spanish-India Observatory on the occasion of the presentation of the programming for 2023 "Visit of Professor Raja Mojan to Spain: India's Vision on the Indo-Pacific". Available at: http://www.spain-india.org/files/documentos/Outcome_Paper-Espanol.pdf

[3] See the Concept Paper prepared by the Spanish-India Observatory on the occasion of the First Spain-India Dialogue "Europe, India, and the Indo-Pacific: An Analysis of the European Union's Strategy for Cooperation in the Indo-Pacific and the Global Gateway Initiative". Available at: http://www.spain-india.org/files/documentos/ES-Concept_Paper-Europa_India_y_el_Indo-Pacifico.pdf

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